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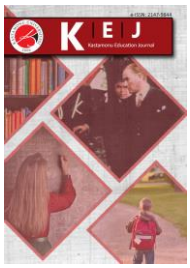

| Research Article / Araştırma Makalesi |

Relationships between Adolescents' Irrational Beliefs, Personality Characteristics and Stress Coping Approaches

Ergenlerin Akılcı Olmayan İnançları ile Kişilik Özellikleri ve Stresle Başa Çıkma Yaklaşımları Arasındaki İlişkiler

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Keywords

1. Irrational beliefs
2. Personality characteristics
3. Stress coping
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Anahtar Kelimeler

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Abstract

Purpose: The current study aims to determine the extent to which adolescents' irrational beliefs are predicted by their personality characteristics and stress coping approaches and investigate whether adolescents' irrational beliefs vary significantly depending on gender and parents' education level.

Design/Methodology/Approach: The study population comprises 5120 high school students attending the high schools in the Menteşe district of the city of Muğla in the 2019-2020 school year. The study sample consists of 512 students selected from among the population by using the stratified sampling method. The data collection tools, an information form to collect demographic data about the students, the Irrational Beliefs Scale-Adolescent Form, the Five-Factor Personality Inventory and the Stress Coping Styles Scale were used in the current study. Hierarchical multiple linear regression analysis was conducted to determine the extent to which the adolescents' personality characteristics and stress coping approaches predict irrational beliefs, and three-directional variance analysis was conducted to determine whether the adolescents' irrational beliefs vary significantly depending on gender, mother's education level and father's education level.

Findings: As a result of the study, it was concluded that from among the personality characteristics, the sub-dimension of "neuroticism" positively and significantly predict the irrational beliefs in adolescents while the sub-dimensions of "openness to experience" and "agreeableness" negatively and significantly predict them and from among of the stress-coping approaches, the sub-dimension of "desperate approach" positively and significantly predicts the irrational beliefs in adolescents while the sub-dimensions of "optimistic approach" and "seeking for social support" negatively and significantly predict them. While the adolescents' irrational beliefs were found to not vary significantly depending on gender, mother's education level and father's education level, they were found to be varying significantly depending on binary interaction of gender x father's education level. While in the male adolescents, the irrational beliefs were found to be decreasing with the increasing education level of the father, this is not true for the female adolescents.

Highlights: The current study is essential in terms of eliciting the factors that should be taken into consideration in explaining and reducing irrational beliefs in adolescents.

Öz

Çalışmanın amacı: Bu araştırmanın amacı ergenlerin akılcı olmayan inançlarının kişilik özellikleri ve stresle başa çıkma yaklaşımları tarafından yordanması ile akılcı olmayan inançlarının cinsiyet ve ebeveyn öğrenim düzeyi değişkenleri açısından farklılaşıp farklılaşmadığının saptanmasıdır.

Materyal ve Yöntem: Araştırmanın evrenini 2019-2020 eğitim öğretim yılında, Muğla ilinin Menteşe ilçesinde, ortaöğretim kurumlarında öğrenim gören 5120 lise öğrencisi oluşturmaktadır. Örneklemi ise evrenden tabakalı örnekleme yöntemiyle seçilen 512 öğrenci oluşturmaktadır. Araştırmada veri toplama araçları olarak öğrencilere ilişkin demografik bilgilerin elde edildiği kişisel bilgi formu, Akılcı Olmayan İnanç Ölçeği-Ergen Formu, Beş Faktör Kişilik Envanteri ve Stresle Başa Çıkma Tarzları Ölçeği kullanılmıştır. Ergenlerin kişilik özellikleri ve stresle başa çıkma yaklaşımlarının akılcı olmayan inançlarını ne ölçüde yordadığını belirlemek için hiyerarşik çoklu doğrusal regresyon analizi ve ergenlerin akılcı olmayan inançlarının cinsiyet, anne öğrenim düzeyi ve baba öğrenim düzeyi değişkenlerine göre istatistiksel olarak anlamlı farklılık gösterip göstermediğini belirlemek üzere üç-yönlü varyans analizi yapılmıştır.

Bulgular: Araştırmanın sonucunda kişilik özelliklerinden "nevrotiklik" alt boyutunun pozitif; "deneyime açıklık" ve "uyumluluk" alt boyutlarının ise negatif yönde; stresle başa çıkma yaklaşımlarından "çaresiz yaklaşım" alt boyutunun pozitif; "iyimser yaklaşım" ve "sosyal destek arama" alt boyutlarının ise negatif yönde ergenlerin akılcı olmayan inançlarını manidar düzeyde yordadığı belirlenmiştir. Ergenlerin akılcı olmayan inançları cinsiyet, anne öğrenim düzeyi ve baba öğrenim düzeyine göre anlamlı farklılık göstermez iken cinsiyet x baba öğrenim düzeyi ikili etkileşimine göre anlamlı farklılık gösterdiği bulunmuştur. Erkek ergenlerde akılcı olmayan inançlar babalarının öğrenim düzeyi arttıkça azalırken kız ergenler de böyle bir örüntü görülmemiştir.

Önemli Vurgular: Bu çalışma, ergenlerin akılcı olmayan inançlarının açıklanması ve azaltılması ile ilgili yapılacak araştırmalarda dikkate alınması gereken faktörlerin ortaya konulması bakımından önem arz etmektedir.

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INTRODUCTION

Adolescence can be defined as a difficult life period in which many novelties are experienced, and some developments enable the transition to adulthood. In addition, it is considered as one of the most critical processes in terms of the development of individuals, since it is the period when the personality is largely shaped (Elçin-Boyacıoğlu & Küçük, 2011). Ellis (1995) emphasized that individuals tend to evaluate themselves and others in adolescence. The same event may be perceived differently by the same adolescent since emotional ups and downs are experienced intensely in adolescence (Kulaksızoğlu, 2011). At this point, Ellis (1995) argued that individuals have some irrational beliefs that negatively affect their perceptions. Bernard (1984) emphasized that these irrational beliefs that individuals have about themselves, others and the world they live in are also possessed by children and adolescents. Significantly adolescents can develop many new irrational beliefs because of the adolescent self-centeredness and the complex reasoning characteristic of Piaget's abstract operations period.

Irrational beliefs focus on Rational Emotive Behaviour Therapy (RTBT), developed by Albert Ellis in the 1950s. RTBT claims that individuals constantly tend to blame factors outside of their control as the source of their negative emotions. However, the cause of emotional disturbances is not the event but the beliefs and thoughts in the minds of the individuals about that event (Ellis, 1994; Turner & Barker, 2015). In RTBT, beliefs are at the center of the feelings and behaviors of individuals and are an essential determinant of these feelings and behaviors (Dryden & Branch, 2008). Individuals' beliefs can be irrational and unhealthy and rational and healthy (Choudhury, 2013; Dryden, 1999; Vernon, 2004). Rational beliefs are logical, flexible, not overwhelming, consistent with reality, and often greatly help an individual achieve his/her goals. However, irrational beliefs at the center of most psychological problems are fundamentally rigid, harsh, extreme, inconsistent with reality, illogical, and prevent the individual from achieving his/her goals (Dryden & Branch, 2008). It has been suggested that undesirable emotional and behavioral consequences are primarily due to irrational thoughts or beliefs (Dryden, 1999; Ellis, 1994).

When the existing research on irrational beliefs is examined, it is seen that personality characteristics are particularly associated with irrational beliefs. For example, studies by Forman and Forman (1978), Gorman and Simon (1977), Jones (1968), Wicker, Richardson and Lambert (1985), Zurawski and Smith (1987) can be cited as evidence for this relationship. Some findings indicating this association are as follows: Jones (1968) found that irrational beliefs are positively correlated with some personality characteristics such as anxiety and nervousness while others such as social courage and emotional stability are negatively correlated with irrational beliefs. Gorman and Simon (1977) found that irrational beliefs are negatively correlated with emotional stability while positively correlated with some personality characteristics such as nervousness and being on alert. Forman and Forman (1978) emphasized that the people receiving high scores from personality characteristics such as individuality and intelligence have lower irrational belief scores. In the subsequent studies, the relationships between personality traits and irrational beliefs were investigated by applying the more superficial "Big Five" model (Davies, 2006; Ghumman & Shoaib, 2013; Jibeen, 2015; Mahfar, Senin, Yong & Ghani, 2018; Samar, Walton & McDermut, 2013; Sava, 2009; Sharah, 2012; Sheng, 2017; Spörrle, Strobel & Tumasjan, 2010). The Five-Factor Model, commonly known as the Big Five model, consists of the concepts of "openness to experience," "conscientiousness," "extraversion," "agreeableness," and "neuroticism" generally represented by the abbreviation OCEAN (McCrae & Costa, 1987, 2008; Samar et al., 2013).

Famous for its ability to predict psychological consequences, the Five-Factor Model is widely used in different contexts and cultures (Costa & McCrae, 1992; McCrae & Costa, 1997; McCrae & John, 1992). According to the model, individuals with higher "openness to experience" are more likely to be more creative, original, insightful and intellectual. Also, these individuals tend to like to learn (McCrae, 1996; Ozer & Benet-Martinez, 2006). On the other hand, individuals tending "conscientiousness" show higher levels of self-discipline. Individuals with this trait are more passionate and insistent in achieving their goals (Costa & McCrae, 1992; Ozer & Benet-Martinez, 2006). On the other hand, individuals with higher "extroversion" tendencies are prone to be more social, confident, talkative, and with more positive energy (Costa & McCrae, 1992; McCrae, 1990); individuals with a tendency towards "agreeableness" tend to be more sympathetic, compassionate, and more sensitive to the needs of others (Graziano, Jensen-Campbell & Hair, 1996). Finally, individuals with a tendency towards "neuroticism" are expected to display higher emotional instability and negative emotions. In addition, these individuals are prone to display higher levels of anxiety, impulsivity, and depression (Costa & McCrae, 1992).

When the findings of some studies using the Five-Factor Model to investigate the relationship between irrational beliefs and personality characteristics in adult samples are examined, it is seen that though these findings have some similarities, they are not much consistent. Sava (2009), Spörrle et al. (2010) and Davies (2006) found that the personality characteristic of "neuroticism" is positively and significantly correlated with irrational beliefs. Moreover, according to Sava (2009), Spörrle et al. (2010) and Davies (2006), there is no correlation between the personality characteristic of "extroversion" and irrational beliefs. On the other hand, while Spörrle et al. (2010) and Davies (2006) claim that there is a negative and significant correlation between the personality characteristic of "openness to experience" and irrational beliefs, Sava (2009) found no significant correlation between the

personality characteristic of "openness to experience" and irrational beliefs. While Sava (2009) and Spörrle et al. (2010) found a negative and significant correlation between the personality characteristic of "agreeableness" and irrational beliefs, Davies (2006) found no significant correlation between the personality characteristic of "agreeableness" and irrational beliefs. Finally, while Davies (2006) found a positive and significant correlation between the personality characteristic of "conscientiousness" and irrational beliefs, Sava (2009) and Spörrle et al. (2010) found no correlation between the personality characteristic of "conscientiousness" and irrational beliefs. All these findings reported in the literature show that it is impossible to clearly define the relationship between personality characteristics (Big Five) and irrational beliefs. In this connection, the relationship between personality characteristics and irrational beliefs in adolescents will be investigated with the current study for the first time. Moreover, the current study will be attempted to clarify the relationship between personality characteristics and irrational beliefs.

Another variable associated with irrational beliefs is stress coping approaches. In the literature, many studies are associating irrational beliefs with stress coping approaches (Akbağ, 2000; Aysan & Bozkurt, 2000; Hamarta, Arslan, Saygın & Özyeşil, 2009; Mayhew & Edelmann, 1989; Schill, Adams & Ramanaiah, 1982). Stress can be defined as "a situation that occurs when the physical and mental limits of the organism are threatened or forced" (Baltaş & Baltaş, 2004, p.23). In this context, stress coping can be expressed as all reactions displayed to reduce and eliminate the emotional tension caused by stressors. Strategies for coping with stress fall into two groups; problem-focused coping and emotion-focused coping. The problem-focused coping approach involves more active, rational, calm and conscious efforts to change the situation.

In contrast, the emotion-focused coping approach usually involves negative approaches such as moving away from the source of the problem, excessive self-control, seeking social support and accepting the situation quickly without struggling (Lazarus & Folkman, 1984). Within the context of the current study, approaches to coping with stress will be evaluated based on five basic strategies determined by Lazarus and Folkman. These five basic strategies are (1) self-confident approach, (2) optimistic approach and (3) social support, which are addressed under the umbrella term of problem-focused/active coping and (4) submissive approach and (5) desperate approach, which are addressed under the umbrella term of emotion-oriented/passive coping. When the findings of the studies investigating the relationship between irrational beliefs and stress coping approaches in adult samples are examined, it is seen that approaches that try to cope constructively with the stress situation and focus on solving the problem are associated with low levels of irrational beliefs, but adopting approaches such as submission, helplessness, and avoidance instead of constructively resolving the stress situation is associated with high levels of irrational beliefs (Akbağ, 2000; Aysan & Bozkurt, 2000; Hamarta et al., 2009; Mayhew & Edelmann, 1989; Schill et al., 1982). Thus, investigation of the relationship between irrational beliefs and stress-coping approaches in adolescent samples is thought to make essential contributions to the theoretical knowledge base in this field and provide essential insights about how to deal with irrational beliefs in adolescents.

On the other hand, it is seen that some findings show that irrational beliefs in adolescents vary depending on some demographic variables such as gender (Altıntaş, 2006; Erdin, 2016, Göller, 2010) and parents' education level (Altıntaş, 2006; Çivitci, 2006a; Yıldız, 2016). However, while in some of these studies, females were found to have higher levels of irrational beliefs (Altıntaş, 2006; Göller, 2010), in some others, males were found to have higher levels of irrational beliefs (Erdin, 2016) and in some others, it was found that irrational beliefs in adolescents do not vary significantly depending on gender (Aydoğdu, 2017; Çelik, 2019; Çivitci, 2006a; Deniz, 2018; Durm & Stowers, 1998; Elçin-Boyacıoğlu, 2010; Karaman, 2018; Kartol, 2013; Yıldız, 2016). Similar uncertainty has been reported about the effect of parents' education level on irrational beliefs. While in some studies, mother's education level was found to have a significant effect on irrational beliefs in adolescents (Altıntaş, 2006; Çivitci, 2006a), in some others, father's education level was found to have a significant effect on irrational beliefs in adolescents (Çivitci, 2006a; Yıldız, 2016) and in some other studies, irrational beliefs were found not to vary significantly depending on parents' education level (Altıntaş, 2006; Çelik, 2019; Deniz, 2018; Erdin, 2016; Kartol, 2013; Yıldız, 2016). In light of all these findings, it is difficult to say which adolescent groups are more at risk of exhibiting irrational beliefs. In this regard, the current study will be attempted to determine which adolescent groups are at risk. To this end, the variables of gender, mother's education level, and father's education level will be investigated separately and in different combinations by using the factorial ANOVA method; thus, adolescent groups at risk have high levels of irrationality beliefs will be determined. In this way, adolescent groups who will be given priority in the preventive counseling practices at schools will be determined.

The Problem Situation and Significance of the Study

When the studies investigating the relationship between irrational beliefs that are important for the spiritual and physical health of adolescents and psychological variables are examined, it is seen that irrational beliefs in adolescents are positively correlated with depression (Göller, 2010; Karaman, 2018; Küçük, Gür, Şener, Elçin-Boyacıoğlu & Çetindağ, 2016; Marcotte, 1996), emotional and behavioural problems (Silverman & DiGiuseppe, 2001), anger (Fives, Kong, Fuller & DiGiuseppe, 2011; Karaman, 2018), enmity (Fives et al., 2011), hopelessness (Göller, 2010), negative parental attitudes (Güler, 2012; Öztütüncü, 1996), negative familial relationships (Öztütüncü, 1996), trait anxiety (Çetin & Ceyhan, 2018; Çivitci, 2005, 2006b), exam anxiety (Ejei, Rezaei & Lavasani, 2011; Elçin-Boyacıoğlu, 2010; Elçin-Boyacıoğlu & Küçük, 2011; Güler, 2012; Güler & Çakır, 2013), social anxiety (Deniz,

2018), aggression (Fives et al., 2011; Kılıçarslan, 2009; Kılıçarslan & Atıcı, 2010), stress (Craciun, 2013; Mahfar et al., 2014; Yıldız, Baytemir & Demirtaş, 2018), perfectionism (Aydoğan, Deniz, Dilmaç & Koruklu, 2009; Craciun, 2013; Flett, Hewitt & Cheng, 2008), professional indecisiveness (Hamamcı & Çoban, 2012), general self-efficacy (Alçay, 2015), anxiety, negative self-esteem, somatisation (Karaman, 2018), school burnout (Uzun & Kemerli, 2019), alexithymia and intolerance of uncertainty (Uzun, Gönültaş & Akın, 2020). Moreover, adolescents' irrational beliefs were found to be negatively correlated with problem-solving skills (Uygur, 2018; Yıkılmaz, 2009; Yıkılmaz & Hamamcı, 2012), perceived academic achievement (Göller, 2010), general grade point average (Çetin & Ceyhan, 2018), social skill (Çivitci & Çivitci, 2009), learned optimism (Ulusoy & Duy, 2013), intrapersonal and interpersonal skills (Kartol, 2013), adaptation to conditions and environment (Kartol, 2013), social, affective and educational adaptation (Hamidi & Hosseini, 2010), stress management, general mood (Kartol, 2013), professional maturity (Hamamcı & Çoban, 2012), empathy (Kızılyar, 2010), leadership (Morris, 1992), perceived social support (Öksüz, Ayvalı, Coşkun, Baba & İnci, 2011), life satisfaction (Çivitci, 2009), self-esteem (Deniz, 2018; Yıldız et al., 2018), self-regulation skill (Çetin & Ceyhan, 2018), decision making skill (Peker, Kartol & Demir, 2015) and subjective well-being (Aydoğdu, 2017). In this respect, it can be said that irrational beliefs in adolescents have a complex construct affected by many variables. In the literature, studies are revealing the relationships between personality characteristics of adolescents (Davies, 2006; Ghumman & Shoaib, 2013; Jibeen, 2015; Mahfar et al., 2018; Sava, 2009; Sharah, 2012; Sheng, 2017; Spörrle et al., 2010) and their stress-coping approaches (Akbağ, 2000; Aysan & Bozkurt, 2000; Hamarta et al., 2009; Mayhew & Edelmann, 1989; Schill et al., 1982) with irrational beliefs. However, as a result of the literature review, it was seen that there is no study investigating the effect of personality characteristics and stress-coping approaches in explaining irrational beliefs in adolescents. This shows a paucity of research focused on the explanation of possible sources of irrational beliefs in adolescent samples and the determination of risk factors. Unlike other studies, the extent to which personality characteristics and stress coping approaches affect irrational beliefs in adolescents was investigated in the current study. In this regard, the current study is original and makes theoretical contributions to irrational beliefs in adolescents. The current study is essential in eliciting the factors that should be taken into consideration in explaining and reducing irrational beliefs in adolescents.

Moreover, when the relevant literature is reviewed, it is seen that the results of the studies conducted to determine whether adolescents' irrational beliefs vary significantly depending on demographic variables such as gender (Altıntaş, 2006; Aydoğdu, 2017; Çelik, 2019; Çivitci, 2006a; Deniz, 2018; Durm & Stowers, 1998; Elçin-Boyacıoğlu, 2010; Erdin, 2016; Göller, 2010; Karaman, 2018; Kartol, 2013; Yıldız, 2016) and parents' education level (Altıntaş, 2006; Çelik, 2019; Çivitci, 2006a; Deniz, 2018; Erdin, 2016; Kartol, 2013; Yıldız, 2016) seem to be not consistent. Investigation of whether adolescents' irrational beliefs vary significantly depending on some demographic variables can clarify this inconsistency in the literature, to the understanding of the phenomenon of irrational beliefs and the knowledge base in the literature.

Purpose of the Study

Based on all these explanations, the purpose of this study is to determine the extent to which personality characteristics and stress coping approaches predict irrational beliefs in adolescents and to investigate whether the adolescents' irrational beliefs vary significantly depending on gender and parents' education level. To this end, answers to the following questions were sought:

1. Is there a statistically significant correlation between the adolescents' irrational beliefs, personality characteristics and stress coping approaches?
2. Are the personality characteristics and stress coping approaches of the adolescents statistically significant predictors of their irrational beliefs?
3. Do the adolescents' irrational beliefs vary significantly depending on gender and parents' education level?

METHOD/MATERIALS

The correlational survey model was used to investigate irrational beliefs in relation to personality characteristics and stress coping approaches. The correlational survey model is a research model aiming to investigate whether there is co-variance between two or more variables and the degree of this co-variance (Karasar, 2012).

Population and Sample

The study population comprises the 5120 high school students attending the high schools in the Menteşe district of the city of Muğla in the 2019-2020 school year. In selecting the students to be included in the sample, the stratified sampling method, one of the random sampling methods, was used. Stratified sampling is a sampling method that aims to identify subgroups in the population and ensure that these sub-groups are represented in the sample proportional to their sizes in the population (Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz & Demirel, 2016). In this context, by considering the possibilities and limitations (time, money, etc.) of the researchers, from among 5120 students in the population, it was decided to create a 10% sample that was thought to be able to represent the population (Özen & Gül, 2007). In this way, the sample consisted of 512 students with a mean age of 15.35 was constructed. However, in the data analysis stage, as the data collected from 12 students had outliers, they

were excluded from the data set, and all the remaining analyses were conducted on the data collected from 500 students. The participation was on a volunteer basis. Information about the sample of the study is given in Table 1.

Table 1. Demographic information about the sample of the study

Factor	Variable	n	%
Gender	Female	280	56.00
	Male	220	44.00
School Type	Vocational High School	257	51.40
	Anatolian High School	243	48.60
Mother's Education Level	Primary School	261	52.20
	Middle School	88	17.60
	High School and Higher	151	30.20
Father's Education Level	Primary School	205	41.00
	Middle School	115	23.00
	High School and Higher	180	36.00
	Total	500	100.00

As shown in Table 1, 56.00% (n=280) of the participating students are females, and 44.00% (n=220) are males. Of the participants, 51.40% (n=257) are vocational high school students and 48.60% (n=243) are Anatolian high school students. When the education levels of the students' mothers are examined, it is seen that 52.20% (n=261) of the mothers are primary school graduates, 17.60% (n=88) are middle school graduates, and 30.20% (n=151) are high school graduates or hold a higher degree. When the education levels of the students' fathers are examined, it is seen that 41.00% (n=205) of them are primary school graduates, 23.00% (n=115) are middle school graduates, and 36% (n=180) are high school graduates or hold a higher degree. While 85.40% (n=427) of the participating students live with their families, 6.60% (n=33) live with their relatives, and 8.00% (n=40) live in a dormitory.

Data Collection Tools

A personal information form was used to elicit demographic information about the students in the current study. The Irrational Beliefs Scale-Adolescent Form, the Five-Factor Personality Inventory and the Stress Coping Styles Scale were used as the data collection tools. For all the data collection tools, the required permissions were taken from the intellectual property rights owners by e-mail. Before starting the study, all these permissions taken were added to the application file prepared for the Ethics Committee Approval. In the process initiated after the ethics committee approval was taken, no concessions were made in the publication ethics.

Personal Information Form

In order to elicit information about some demographic features of the participating students, a personal information form was developed by the researchers. There are items to elicit gender, school type, and parents' education level in the personal information form.

The Irrational Beliefs Scale-Adolescent Form (IBS-AF)

The IBS-AF was developed by Türküm (2003) to determine the irrational beliefs of university students. The adaptation of the scale for adolescents was performed by Türküm, Balkaya and Karaca (2005). The scale is a single-factor scale consisting of 16 items. Each item is rated on a 5-point Likert scale ranging from 1 (completely unsuitable) to 5 (entirely suitable). The scale is a self-report inventory. On the scale, there are no reverse coded items. The lowest score to be taken from the scale is 16, while the highest is 80. Higher scores taken from the scale indicate an increasing level of irrational beliefs in adolescents. The scale is uni-dimensional. The Cronbach alpha internal consistency coefficient of the IBS-AF was .70 (Türküm et al., 2005).

In order to use the IBS-AF in the current study, reliability and validity studies were carried out first. For the reliability study, Cronbach's alpha consistency coefficient was calculated and found to be .72. CFA was performed to test the structural validity of the scale, and it was found that fit indices were significant (X2=820.64, df=304, p=.000, X2/df=2.69, CFI=.86, NNFI=.92, RMSEA=.078, SRMR=.092). Considering these values, it can be said that the scale is reliable and valid enough to be used in research (Kline, 2014).

Five-Factor Personality Inventory (FFPI)

The FFPI inventory was developed by Benet-Martinez and John (1998) to briefly and effectively evaluate five dimensions of personality. Sümer and Sümer (2005) performed an adaptation of the scale to the Turkish culture. This self-report inventory

covering five dimensions of personality characteristics consisted of 44 items. Each item is rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The scale is a self-report inventory. There are 16 reverse-coded items in the inventory. The inventory has five sub-dimensions. A total score cannot be taken from the scale, and each sub-dimension is evaluated in itself. A score obtained for each sub-dimension of the FFPI indicates the extent to which the respondent possesses the personality characteristic represented by this sub-dimension. The Cronbach alpha internal consistency coefficients of the sub-dimensions of the scale are as follows; .79 for neuroticism (8 items), .77 for extroversion (8 items), .76 for openness to experience (10 items), .70 for agreeableness (9 items) and .78 for conscientiousness (9 items) (Schmitt, Allik, McCrae & Benet-Martinez, 2007).

In order to use the FFPI in the current study, reliability and validity studies were carried out first. For reliability study, the Cronbach's alpha consistency coefficients of the sub-dimensions of the scale were found to be as follows; .71 for the sub-dimension of neuroticism, .69 for the sub-dimension of extroversion, .68 for the sub-dimension of openness to experience, .64 for the sub-dimension of agreeableness and .73 for the sub-dimension of conscientiousness. CFA was performed to test the structural validity of the scale, and it was found that fit indices were significant (X2=2157.74, df=819, p=.000, X2/df=2.69, CFI=.83, NNFI=.90, RMSEA=.064, SRMR=.095). Considering these values, it can be said that the scale is reliable and valid enough to be used in research (Kline, 2014).

Stress Coping Styles Scale (SCSS)

The SCSS was developed by Lazarus and Folkman (1984) to determine individuals' behaviors and cognitive coping styles in the face of a stressful event. The scale adaptation to the Turkish culture was performed by Siva (1991), and then it was converted into a short form by Şahin and Durak (1995). The scale has consisted of 30 items. Each item is rated on a 4-point Likert scale ranging from 1 (completely unsuitable) to 4 (entirely suitable). The scale is a self-report inventory. There are two reverse-scored items on the scale. The scale has five sub-dimensions. A total score cannot be taken from the scale, and each sub-dimension is evaluated in itself. A score taken for each sub-dimension in the SCSS indicates how much the respondent possesses the stress-coping style represented by this sub-dimension. Within the context of the reliability study of the SCSS, Cronbach alpha internal consistency coefficients were found to be as follows for the sub-dimensions; .80 for self-confident approach (7 items), .68 for optimistic approach (5 items), .47 for social support seeking (4 items), .70 for submissive approach (6 items) and .73 for desperate approach (8 items) (Şahin & Durak, 1995).

In order to use the SCSS in the current study, reliability and validity studies were carried out first. For reliability study, the Cronbach's alpha consistency coefficients of the sub-dimensions of the scale were found to be as follows: .75 for the sub-dimension of self-confident approach, .68 for the sub-dimension of optimistic approach, .48 for the sub-dimension of social support, .68 for the sub-dimension of submissive approach and .74 or the sub-dimension of desperate approach. CFA was performed to test the structural validity of the scale, and it was found that fit indices were significant (X2=1406.91, df=495, p=.000, X2/df=2.84, CFI=.85, NNFI=.91, RMSEA=.072, SRMR=.086). Considering these values, it can be said that the scale is reliable and valid enough to be used in research (Kline, 2014).

Data Collection

Before initiating the current study, the researchers took approval from the Burdur Mehmet Akif Ersoy University Non-invasive Clinical Research Ethics Committee. Then the required permissions were taken from the Muğla National Education Directorate for conducting the study in the high schools in the Menteşe District of the city of Muğla. To collect the data, the researchers personally went to the schools in the sample. The researchers entered into each class one by one and made the necessary explanations to the students about the content and scales of the study. Informed consent forms were taken from students who wanted to participate on a volunteer basis and their parents. Then, the scales were administered to the students. The administration of the scales lasted for 25 minutes on average. The scales completed by the students were examined, and the incomplete scales were excluded from the study.

Data Analysis

In the first stage of the analysis, it was investigated whether there were missing data, and it was determined that there were less than 5% missing data. Based on Little's MCAR test results conducted to determine whether the missing data were distributed randomly, it was decided that the missing data were distributed randomly. As the missing data were less than 5% and randomly distributed, values were assigned to the missing data through the expectation-maximization (EM) method (Tabachnick, Fidell & Ullman, 2007). After resolving the missing data problem, univariate and multivariate outliers in the data set were examined. First, the z test was conducted to investigate univariate outliers, and as the sample size is more significant than 100, z score between +4.00 and -4.00 was taken as the reference value (Mertler & Vannatta, 2005). The data of seven students whose z score was outside the range of -4.00 and +4.00 were excluded from the study. Then Mahalanobis distance values were calculated to analyze multivariate outliers, and the data of five students were excluded from the study as they expressed outliers (Tabachnick et al.,

2007). Thus, 12 students' data were excluded from the study and all the remaining analyses were conducted on the data collected from 500 students.

Within the current study, the hierarchical multiple regression was conducted to determine how personality characteristics and stress coping approaches predict irrational beliefs. In order to be able to conduct the regression analysis, it was first checked whether the variables in the data set satisfied the normality assumption and whether there was a multicollinearity problem. As skewness and Kurtosis values calculated for each variable were found to be between -1.00 and +1.00, it was concluded that the data did not show extreme deviation from the normal distribution (Çokluk, Şekercioğlu & Büyüköztürk, 2014). Thus, the normality assumption was satisfied. The skewness and Kurtosis coefficients of the variables are given in Table 2.

Table 2. Skewness and Kurtosis coefficients of variables

	Skewness	Kurtosis
Irrational beliefs	-.347	.136
Personality Characteristics		
Neuroticism	.161	.099
Extroversion	-.235	-.244
Openness to experience	-.331	-.077
Agreeableness	-.253	.119
Conscientiousness	-.042	-.588
Stress Coping Styles		
Self-confident approach	-.420	.159
Optimistic approach	-.340	-.072
Social support seeking	-.583	.893
Submissive approach	.523	-.057
Desperate approach	.262	-.468

In order to determine whether there was a multicollinearity problem in the data set, simple correlations between the variables were checked. As a result of the analysis, all the values of the simple correlations between the variables were found to be lower than .90 (Çokluk et al., 2014). Moreover, tolerance and VIF values were also investigated to determine whether there was a multicollinearity problem in the data set, and the obtained values are presented in Table 6. As the VIF value was found to be lower than 10 and tolerance values were found to be higher than .20, it was concluded that there was no multicollinearity problem (Field, 2009).

Beta and Cook's Distance values were examined to make extreme values analysis. It has been observed that there is no value greater than 1 (Tabachnick et al., 2007) expressed as a critical value among the relevant values. In this sense, since it was observed that there was no extreme value in the data set, no observations were removed from the set. Moreover, the plots of residuals were examined to control the homoscedasticity assumption. It was observed that this assumption was fulfilled since the residual values in the related graphs were gathered around zero and in equal proportion (Field, 2009).

The autocorrelation state between variables was examined by looking at the Durbin-Watson coefficient. It was determined that the coefficient was 2.099 in the range of 1.50 - 2.50, which is considered the threshold value range (Kalaycı, 2016). As a result of these analyzes, it was determined that the basic regression analysis assumptions were met, and hierarchical regression analysis was started.

A three-way variance analysis was conducted to determine whether the adolescents' irrational beliefs vary significantly depending on gender, mother's education level and father's education level. Before the variance analysis, the Levene test was run to determine whether the data set satisfied the assumption of the homogeneity of the variances. The results of the Levene test were found to be not statistically significant [$F(17,482)=1.42$, $p>.05$], and thus, the assumption of the homogeneity of the variances was satisfied.

FINDINGS

As for the first research problem of the current study, Pearson Product-Moments correlation coefficients were used to calculate the simple correlations to determine whether there is a significant correlation between the adolescents' irrational beliefs, personality characteristics and stress coping approaches. Means and standard deviations for each variable and the correlation values between the variables are shown in Table 3.

Table 3. Simple correlation values between the variables

	$\bar{\bar{X}}$	S	1	2a	2b	2c	2d	2e	3a	3b	3c	3d	3e
1.Irrational beliefs	60.51	7.86	1.00	.07	-.04	-.24*	-.32*	-.16*	-.21*	-.21*	-.22*	.07	.27*
2a. Neuroticisim	24.08	6.14		1.00	-.26*	-.19*	-.23*	-.41*	-.35*	-.43*	-.13*	.05	.33*
2b. Extroversion	27.07	5.51			1.00	.26*	.13*	.11*	.29*	.13*	.19*	-.16*	-.18*
2c. Openness to experience	35.72	6.01				1.00	.21*	.33*	.37*	.23*	.06	-.09*	-.02
2d. Aggreabelness	31.89	4.91					1.00	.28*	.19*	.32*	.24*	-.07	-.07
2e. Conscientiousness	30.40	6.23						1.00	.41*	.39*	.14*	-.10*	-.09*
3a. Self-confident approach	20.31	3.83							1.00	.58*	.16*	-.15*	-.07
3b. Optimistic approach	13.53	3.03								1.00	.087	-.01	-.10*
3c. Social support seeking	13.35	2.11									1.00	-.10*	-.07
3d. Submissive approach	11.20	2.99										1.00	.44*
3e. Desperate approach	19.07	4.68											1.00

*p<.05

As can be seen in Table 3, while there is no statistically significant correlation between the adolescents' irrational beliefs and the five-factor personality inventory's sub-dimensions of neuroticism (r=.07, p>.05) and extraversion (r=-.04, p>.05), there is a negative and statistically significant correlation between the irrational beliefs and the sub-dimensions of openness to experience (r=-.24, p<.05), agreeableness (r=-.32, p<.05) and conscientiousness (r=-.16, p<.05). While there is a positive and insignificant correlation between the adolescents' irrational beliefs and the stress coping styles scale's sub-dimensions of submissive approach (r=.07, p>.05), there is a positive and significant correlation between the irrational beliefs and the sub-dimension of desperate approach (r=.27, p<.05) and a negative and significant correlation between the irrational beliefs and the sub-dimensions of self-confident approach (r=-.21, p<.05), optimistic approach (r=-.21, p<.05) and social support seeking (r=-.22, p<.05).

As for the second research problem of the current study, hierarchical multiple linear regression was conducted to determine the extent to which personality characteristics and stress coping approaches predict irrational beliefs. During the hierarchical multiple linear regression analysis, the scores belonging to the sub-dimensions of the personality characteristics scale were determined to have theoretically stronger relationships with irrational beliefs in adolescents by previous studies (Davies, 2006; Ghumman & Shoaib, 2013; Jibeen, 2015; Mahfar et al., 2018; Sava, 2009; Sharah, 2012; Sheng, 2017; Spörrle et al., 2010) were taken into the model. In the second stage, the scores belonging to the sub-dimensions of the stress-coping approaches scale were added to the model. Findings of the hierarchical multiple regression are presented in Table 4.

Table 4. Findings of the multiple regression analysis conducted to determine the extent to which personality characteristics and stress coping approaches predict irrational beliefs

Model	Predictor Variables	B	SH(B)	β	t	Tolerance	VIF
1	Constant	25.70	3.90		6.59**	-	-
	1a. Neuroticism	.28	.06	.22	4.66*	.78	1.29
	1b. Extraversion	-.01	.06	-.00	-.09	.88	1.13
	1c. Openness to experience	-.24	.06	-.18	-4.08*	.83	1.20
	1d. Agreeableness	-.48	.07	-.30	-6.96*	.89	1.13
	1e. Conscientiousness	-.13	.06	-.10	-2.19*	.74	1.35
2	Constant	9.33	4.41	-	2.12*	-	-
	1a. Neuroticism	.24	.06	.18	3.83*	.63	1.60
	1b. Extraversion	-.00	.06	-.00	-.07	.81	1.23
	1c. Openness to experience	-.20	.06	-.15	-3.46*	.78	1.28
	1d. Agreeableness	-.39	.07	-.24	-5.75*	.81	1.24
	1e. Conscientiousness	-.05	.06	-.04	-.79	.68	1.47
	2a. Self-confident approach	-.16	.11	-.08	-1.51	.54	1.86
	2b. Optimistic approach	-.33	.13	-.13	-2.50*	.56	1.80
	2c. Social support seeking	-.62	.15	-.17	-4.13*	.90	1.11
	2d. Submissive approach	.04	.12	.01	.33	.75	1.34
	2e. Desperate approach	.43	.08	.26	5.53*	.69	1.46

Note. For Model 1, R^2 = .17; For Model 2, R^2= .28; ΔR^2= .11; *p<.05, **p<.01

When Table 4 is examined, it is seen that in the first block, the sub-dimensions of neuroticism, extraversion, openness to experience, agreeableness and conscientiousness in the personality characteristics scale taken into the model significantly predict the adolescents' irrational beliefs (R=.42, R2=.17, F(5,494)=20.77, p<.05). The predictors in Model 1 explain 17% of the variance in the adolescents' irrational belief score. The variables of neuroticism (t=4.66, p<.05), openness to experience (t=-4.08, p<.05), agreeableness (t=-6.96, p<.05) and conscientiousness (t=-2.19, p<.05) in the Model 1 are statistically significant predictors while the extraversion variable (t=-.09, p>.05) is not a statistically significant predictor. In Model 2, the sub-scales scores in the stress-coping approaches scale were also included in the model. The sub-dimensions of the personality characteristics and stress coping approaches scales together significantly predict the adolescents' irrational beliefs, and the regression model constructed seems to be statistically significant (R=.553, R2=.285, F(10,489)=19.450, p<.01). After the variables of the personality characteristics in Model 2 are controlled, the contribution of the stress-coping approaches to the total variance is 11%. In Model 2, the sub-dimensions of the personality characteristics and stress coping approaches scales explain 28% of the variance in the adolescents' irrational beliefs. Thus they can be said to have a large effect on the adolescents' irrational beliefs (R2>.26) (Cohen, 1988).

When the results of the t-test conducted on the regression coefficients of Model 2 given in Table 4 are examined, it is seen that the neuroticism variable is a positive and statistically significant predictor (t=3.83, p<.05); the openness to experience (t=-3.46, p<.05) and agreeableness (t=-5.75, p<.05) variables are negative and statistically significant predictors; the extraversion (t=-.07, p>.05) and conscientiousness (t=-.79, p>.05) variables are negative and statistically insignificant predictors. While the optimistic approach (t=-2.50, p<.05) and social support seeking (t=-4.13, p<.05) variables in Model 2 are negative and statistically significant predictors, the desperate approach is a positive and statistically significant predictor (t=5.53, p<.05). The self-confident approach variable (t=-1.51, p>.05) and submissive approach variable (t=.33, p>.05) are not statistically significant predictors.

According to the standardized regression coefficients (β) of the statistically significant predictors in Model 2 given in Table 4, the variables can be put into order of importance in terms of their effect on the adolescents' irrational beliefs as follows: desperate approach (β=.26), agreeableness (β=-.24), neuroticism (β=.18), social support seeking (β=-.17), openness to experience (β=-.15) and optimistic approach (β=-.13). When these findings are considered, it can be said that neurotic personality tendencies and desperate stress coping approaches increase irrational beliefs while openness to experience and agreeableness personality tendencies and optimistic and social support seeking approaches decrease irrational beliefs.

As for the third research question, a three-way variance analysis was conducted to determine whether the adolescents' irrational beliefs vary significantly depending on gender, mother's education level and father's education level and the obtained findings are presented in Table 5.

Table 5. Findings of the three-way variance analysis

Source of the Variance	Sum of Squares	df	Sum of Squares	F	p
Gender (G)	180.80	1	180.80	3.05	.08
Mother's education level (MEL)	332.24	2	166.12	2.80	.06
Father's education level (FEL)	104.39	2	52.19	.88	.42
G x MEL	148.70	2	74.35	1.25	.29
G x FEL	450.98	2	225.49	3.80	.02*
MEL x FEL	278.33	4	69.58	1.17	.32
G x MEL x FEL	43.96	4	10.99	.18	.95
Error	28613.19	482	59.36		
Total	30899.18	499			

*p<.05

As can be seen in Table 5, the adolescents' irrational belief scores do not vary significantly depending on gender [$F_{(1,482)}$=3.05, p>.05], mother's education level [$F_{(2,482)}$=2.80, p>.05] and father's education level [$F_{(2,482)}$=.88, p>.05]. When Table 5 is examined, it is seen that while "gender x mother's education level" [$F_{(2,482)}$=1.25, p>.05], "mother's education level x father's education level" [$F_{(4,482)}$=1.17, p>.05] binary interactions and "gender x mother's education level x father's education level" [$F_{(4,482)}$=.18, p>.05] triplet interaction are statistically insignificant, "gender x father's education level" [$F_{(2,482)}$=3.80, p<.05] binary interaction is statistically significant. In order to investigate the effect of gender x father's education level on the irrational belief scores more deeply, the line graph shown in Figure 1 is produced.

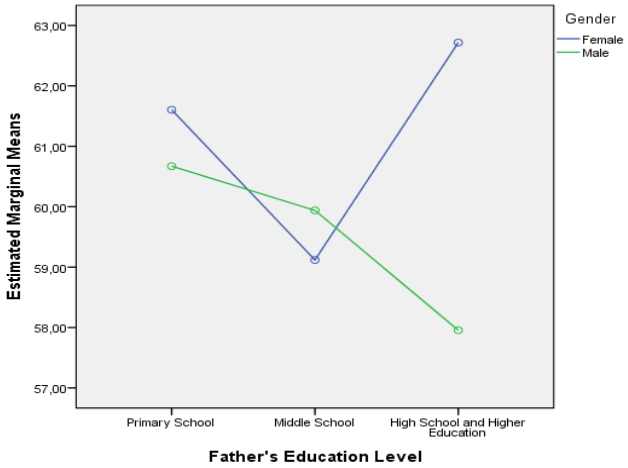

Figure 1. Line graph for the gender x father's education level binary interaction

When the line graph shown in Figure 1 is examined, it is seen that the mean irrational belief score of the female adolescents whose fathers are primary school or high school and higher education graduates is higher than that of the male adolescents whose fathers are primary school or high school and higher education graduates. The mean irrational belief score of the male adolescents whose fathers are middle school graduates is higher than that of the female adolescents. While the mean irrational belief score of the male adolescents was found to be increasing with their fathers' increasing level of education, this pattern was not detected for the female adolescents. While the lowest mean score among the female adolescents was found for the ones whose fathers are middle school graduates, the highest mean score was found for the ones whose fathers are high school and higher education graduates.

DISCUSSION AND CONCLUSION

The current study aimed to investigate the extent to which personality characteristics and stress coping approaches predict irrational beliefs in adolescents. In this respect, when the current study results are examined, it is seen that from among the personality characteristics, the "neuroticism" sub-dimension is a positive and significant predictor of irrational beliefs in adolescents. At the same time, the "openness to experience" and "agreeableness" sub-dimensions are negative and significant predictors of irrational beliefs in adolescents. On the other hand, in the constructed model, from among the personality characteristics, the "extraversion" and "conscientiousness" sub-dimensions were found to be not significant predictors of irrational beliefs in adolescents. These results show that some personality characteristics (neuroticism, openness to experience and agreeableness) considerably affect irrational beliefs in adolescents, yet not all the personality characteristics (extraversion and conscientiousness) affect irrational beliefs. However, when the findings of other studies in the literature are examined, all the studies on this subject agree that the personality characteristic of "neuroticism" is influential on irrational beliefs (positively) (Davies, 2006; Ghumman & Shoaib, 2013; Jibeen, 2015; Mahfar et al., 2018; Samar et al., 2013; Sava, 2009; Sharah, 2012; Sheng, 2017; Spörrle et al., 2010). In this connection, it can be argued that "neuroticism" is the personality characteristic that is the strongest predictor of irrational beliefs.

When the results related to the relationship between the personality characteristics of adolescents and irrational beliefs are examined, it is understood that the adolescents have the personality characteristic of "neuroticism," which is closely associated with the negative emotions of individuals such as sadness, anxiety, anger and shame, develop more irrational beliefs in the face of the events they have experienced. This indicates that neuroticism which is closely associated with the negative emotions of individuals such as sadness, anxiety, anger and shame (Trouba, 2007), can significantly affect the individual's way of thinking. Therefore, due to the features of the developmental stage they are in, the emotional instability of adolescents is high (Koç, 2004), which can increase their tendency towards irrational beliefs. Moreover, this finding is consistent with the basic principle of ADDT, claiming that irrational beliefs are correlated with unhealthy emotions and psychological disorders (Ellis, 1997). When the findings of similar studies in the literature are examined, it is seen that Mahfar et al. (2018) conducted a study on elementary school teachers in Malaysia, Sheng (2017) conducted a study on another group of Malaysian elementary school teachers, Ghumman and Shoaib (2013) conducted a study on Pakistani university students, Sharah (2012) conducted a study on Jordanian university students, Samar et al. (2013) conducted a study on American people aged 17-64, Davies (2006) conducted a study on 18-40 British people, Jibeen (2015) conducted a study on Pakistani adults aged 25-60, Spörrle et al. (2010) conducted a study on Australian university students and Sava (2009) conducted a study on Romanian university students and found that irrational beliefs are positively and significantly correlated with the personality characteristic of "neuroticism." These findings in the literature support the finding of the current study.

Another finding of the current study is that the personality characteristic of "openness to experience," which is associated with creativity, original ideas and intrinsic motivation, reduces irrational beliefs (negative). This finding can be interpreted that an adolescent who is open-minded and creative is more prone to developing a way of thinking directed to finding new and practical ways rather than developing irrational beliefs. This tendency facilitates adolescents' discovery of alternative new beliefs and ways rather than developing irrational beliefs. This finding is supported by Mahfar et al. (2018) and Sheng (2017), who conducted studies on teachers, Samar et al. (2013) and Davies (2006), who conducted studies on adults, Spörrle et al. (2010) and Sharah (2012), who conducted studies on university students. A negative and significant correlation was found between the personality characteristic of "openness to experience" and irrational beliefs in these studies. However, in the literature, some study findings conflict with this finding of the current study. In the studies conducted by Ghumman and Shoaib (2013) and Sava (2009) on university students and by Jibeen (2015) on adults, no correlation was found between the personality characteristic of "openness to experience" and irrational beliefs.

Another finding of the current study is that the individuals having the personality characteristic of "agreeableness" are sympathetic, compassionate and sensitive to others' needs and exhibit lower levels of irrational beliefs. Adolescents with irrational beliefs tend to be more demanding, strict, and persistent than others. Therefore, adolescents exhibiting this tendency are mistaken that everyone must approve and achieve everything. In the ongoing process, adolescents who cannot get what they demand to experience intense disappointment and damage their relationships with other people. In this respect, it can be said that adolescents who have irrational beliefs will lose harmony with their environment over time. The reverse of this cause-effect relationship is likewise plausible. It is quite possible that an individual who exhibits incompatible personality characteristics towards nature and the individuals around him/her has an increasing tendency to display irrational beliefs over time. The findings of the studies conducted by Mahfar et al. (2018) on teachers, by Samar et al. (2013) on adults, by Spörrle et al. (2010), Sharah (2012), Ghumman and Shoaib (2013) and Sava (2009) on university students concur with the findings of the current study. In these studies, individuals with the personality characteristic of "consciousness" exhibited fewer irrational beliefs. However, some other studies report findings conflicting with the findings of the current study. In the studies conducted by Davies (2006) on British adults, by Jibeen (2015) on Pakistani adults and by Sheng (2017) on Malaysian elementary school teachers, no correlation was found between irrational beliefs and the personality characteristic of "agreeableness."

Another finding of the current study is no correlation between the personality characteristic of "extroversion," which is associated with being social, being self-confident, having positive energy and being talkative, and having irrational beliefs. This finding may indicate that the irrational belief scores obtained from the adolescent sample in the current study cannot be wholly explained with the personality characteristics. As explained before, the irrational beliefs of adolescents are related to many variables. Seen from this perspective, it is clear that the possibility of any variable to explain irrational beliefs in adolescents on its own is weak. This finding of the current study is supported by the findings reported in the study conducted by Davies (2006) on adults and in the studies conducted by Spörrle et al. (2010), Sharah (2012), Ghumman and Shoaib (2013) and Sava (2009) on university students. In these studies, no significant correlation was found between the personality characteristic of "extraversion" and irrational beliefs. On the other hand, a negative and significant correlation was found between the personality characteristic of "extraversion" and irrational beliefs in the studies conducted by Mahfar et al. (2018) and Sheng (2017) on teachers and by Samar et al. (2013) and Jibeen (2015) on adults.

Another finding of the current study is that there is no significant correlation between the personality characteristic of "conscientiousness," which is closely associated with a high level of self-discipline and being highly persistent in the accomplishment of goals and irrational beliefs in adolescents. This finding might be that the current study was conducted on a sample of adolescents. When the general Turkish family structure is considered, we can say that adolescents have less workload and responsibility than adults. In our society, individuals in adolescence are generally expected to complete their education and have a profession. While many responsibilities such as supporting a family, taking care of children, earning money, paying house rent and working in a workplace are expected from adults, adolescents are not expected to take such serious responsibilities. In this context, we can say that the responsibilities on adolescents are not intense enough to cause them to develop irrational beliefs. Parallel to this finding of the current study, no significant correlation was found between the personality characteristic of "conscientiousness" and irrational beliefs in the studies conducted by Sheng (2017) on teachers, by Sharah (2012), Sava (2009) and Spörrle et al. (2010) on university students and by Jibeen (2015) on adults. However, studies have reported findings contradicting the current study's findings in the literature. In the studies conducted by Mahfar et al. (2018) on teachers, by Samar et al. (2013) on adults and by Ghumman and Shoaib (2013) on university students, a negative and significant correlation was found between the personality characteristic of "conscientiousness" and irrational beliefs. Moreover, in a study conducted by Davies (2006) on adults, a positive and significant correlation was found between irrational beliefs and the personality characteristic of "conscientiousness." This uncertainty in the literature might have arisen from cultural differences in general and samples selected in particular.

Another finding of the current study is that from among the stress-coping approaches, the "desperate approach" sub-dimension is a positive and significant predictor of irrational beliefs in adolescents, while the "optimistic approach" and "social support seeking" sub-dimensions are negative and significant predictors of irrational beliefs in adolescents. However, in the constructed model, the "self-confident approach" and "submissive approach" sub-dimensions were not significant predictors of

irrational beliefs in adolescents. This finding shows that if the adolescent has an optimistic view about his/her ability to cope with stress-inducing situations, he/she can actively enter the process of solution-seeking. Similarly, an adolescent who knows that he/she can get help from people around in finding solutions to his/her problems (especially if he/she has experienced it before) can remember to seek help rather than struggling with the problems. Otherwise, an adolescent who does not have hope and options to solve the stressful situation can adopt the desperate approach and develop irrational beliefs. In another study, Türküm (2001) found that the students with higher levels of irrational beliefs used the avoidance coping style to deal with problems more than the students with lower levels of irrational beliefs.

Parallel to the findings obtained in the current study concerning the relationship between irrational beliefs and stress coping approaches, in a study conducted by Akbağ (2000) on university students, it was found that the desperate and submissive approaches, two of the stress-coping approaches, are positively correlated with irrational beliefs while the self-confident, optimistic approaches and social support seeking were found to be positively correlated with irrational beliefs. In another study conducted with university students, Aysan and Bozkurt (2000) found that avoidance is positively correlated with irrational beliefs from among the stress-coping approaches, while problem-solving and social support seeking is negatively correlated with irrational beliefs. In their study conducted on university students, Hamarta et al. (2009) found that avoidance is positively correlated with irrational beliefs while problem-focused coping and social support seeking is negatively correlated with them from among the stress-coping approaches. Moreover, in their study on university students, Mayhew and Edelmann (1989) found that when the stress-coping approach used by the individual is functional and robust, then irrational beliefs in this individual decrease. Finally, in their study conducted on university students, Schill et al. (1982) found that making use of the strategies that are weak in coping with stress is correlated with higher levels of irrational beliefs while the use of the strategies powerful in coping with stress is correlated with decreasing irrational beliefs. When the studies in the literature focusing on the relationship between irrational beliefs and stress coping approaches (Akbağ, 2000; Aysan & Bozkurt, 2000; Hamarta et al., 2009; Mayhew & Edelmann, 1989; Schill et al., 1982) are examined, it is seen that in general the approaches attempting to deal with stress constructively and focusing on solving the problem are correlated with low levels of irrational beliefs while the use of approaches such as desperate and avoidance is correlated with the high levels of irrational beliefs. When all these results are taken into consideration, it can be said that the existing research supports the findings of the current study.

Another finding obtained in the current study is that the adolescents' irrational beliefs do not vary significantly depending on gender, mother's education level and father's education level. This might be because irrational beliefs in adolescents have a complex and multi-dimensional structure affected by many factors. As stated above, irrational beliefs in adolescents are influenced by many variables. In this connection, it can be said that the demographic variables of gender, mother's education level and father's education level do not have the effect size to change irrational beliefs in adolescents on their own significance. This can also be because the discrimination between male and female children has been reduced to a great extent nowadays and that females in their adolescent period are as accessible as their male counterparts in their thoughts and behaviors. Elimination of the societal gender discrimination known to have negative influences on women's mental health is thought to make essential contributions to the prevention of irrational beliefs in the adolescent period when societal gender roles are integrated into the personality.

On the other hand, it has become much easier for adolescents to access computers and smartphones with the advancement of technology. This has resulted in parents' not being as influential on adolescents' personal and academic development as in the 1990s. Nowadays, every adolescent, regardless of his/her parents' education level, can easily access the correct information he/she thinks is necessary for him/her. Accordingly, it is expected that the effect of parents' education level on adolescents disappears to a great extent. Parallel to the findings of the current study, when the studies conducted on samples comprised of adolescents are examined, it is seen that irrational beliefs do not vary significantly depending on gender (Aydoğdu, 2017; Çelik, 2019; Çivitci, 2006a; Deniz, 2018; Durm & Stowers, 1998; Elçin-Boyacıoğlu, 2010; Karaman, 2018; Kartol, 2013; Yıldız, 2016), mother's education level (Deniz, 2018; Erdin, 2016; Kartol, 2013; Yıldız, 2016) and father's education level (Altıntaş, 2006; Çelik, 2019; Deniz, 2018; Erdin, 2016; Kartol, 2013). However, there are also some studies in the literature contradictory to the current study's findings. In their studies on adolescents, Altıntaş (2006) and Göller (2010) found that girls have more irrational beliefs than boys. Moreover, Erdin (2016) conducted a study on emerging adolescents and found that boys have more irrational beliefs. Altıntaş (2006) and Çivitci (2006a) found that irrational beliefs in adolescents vary significantly depending on the mother's education level while Çivitci (2006a) and Yıldız (2016) found that they vary significantly depending on father's education level. This difference was found to be between the children of the parents having higher levels of education and the children whose parents have lower levels of education, and they argued that the children of the parents having higher levels of education have fewer irrational beliefs.

In the current study, the adolescents' irrational beliefs were found to be not varying significantly depending on the binary interactions of "gender x father's education level" and "mother's education level x father's education level" and the triplet interaction of "gender x father's education level x father's education level." In contrast, they were found to be varying significantly depending on the binary interaction of "gender x father's education level." While the male adolescents' irrational beliefs were found to be decreasing with their fathers' increasing level of education, this was not observed in the female adolescents. While the female adolescents whose fathers are middle school graduates were the lowest mean score, the highest mean score was taken

by the female students whose fathers are high school or higher education graduates. When this finding is analyzed in terms of the cultural structure, it seems pretty understandable. Regardless of the education level, mothering attitudes are similar to a large extent in Turkey. Therefore, a mother's education level neither on its own nor interaction with other demographic variables does not lead to a significant difference. However, given that the father is responsible primarily for the socio-economic structure of the family in our culture, it can be foreseen that father's education level will be more influential on the social environment of the family (Yıldız, 2016). With the father's increasing level of education, parent-child interaction will be positively affected, and the child's sensitivity to the child's behavioral problems will develop more. In this regard, it seems to be quite normal that male children who generally take their fathers as their role models are affected more by these positive contributions of the father to the family when compared to female children. Fathers with a lower education level expect their children to obey unconditionally and pressure their children to agree with them (Çivitci, 2006a). This pressure environment may cause adolescents to develop irrational beliefs to meet their families' expectations.

RECOMMENDATIONS

In light of the findings of the current study, the following suggestions can be made:

The current study was conducted by using the relational survey model. Future studies can use experimental designs to investigate how irrational beliefs are affected by positive/negative personality characteristics and positive/negative stress coping approaches.

In the current study, quantitative data collection techniques were used. Future research can make use of qualitative research techniques. By conducting in-depth interviews or focus-group interviews with adolescents, the current findings of the relationship between irrational beliefs and personality characteristics and stress coping approaches can be increased. Supporting the findings of the current study conducted using quantitative research design with studies to be conducted by using qualitative research design will increase the reliability and validity of the current study. Using different designs and methods, obtaining similar results is essential for grounding the findings on a solid theoretical base.

The current study investigated the personality characteristics and stress coping approaches predicting irrational beliefs in adolescents. Future research can focus on different variables (psychological mindedness, etc.) to develop a better understanding of irrational beliefs.

The current study sample comprises the students selected from a district (Menteşe) of a city (Muğla) located in the Aegean Region. Using the same variables investigated in the current study, future research can be conducted on samples from different cities, districts and education levels (primary, middle, post-graduate, etc.).

According to the current study's findings, the students exhibiting the characteristics of neurotic personality and using negative (desperate) stress-coping approaches are at a higher risk of developing irrational beliefs. School counselors can determine students in risk groups to develop irrational beliefs by using the five-factor personality characteristics and stress coping approaches scale. Within the context of preventive counseling activities, individual and group counseling activities can be organized with the participation of these students.

School counselors can organize seminars to inform students about positively coping with stress. In this way, adolescents who are in a critical development period can be motivated to develop an optimistic attitude towards the problems they experience and seek social support. Adolescents who learn how to develop positive stress-coping strategies are thought to exhibit a lower tendency towards developing irrational beliefs.

School counselors can prepare a psycho-education program focused on positive stress-coping approaches. Then, this program can be first administered to students displaying the characteristics of neurotic personality and higher levels of irrational beliefs and then to all the students in a school within the context of preventive counseling.

The findings obtained in the current study offer important insights about a relationship that has not been defined before between irrational beliefs and personality characteristics for a sample of adolescents. Awareness of this relationship can help understand the complexity of psychological problems in adolescents and improve the treatments. Moreover, similar studies are needed to replicate the findings and explore the function of personality in developing irrational beliefs.

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Statements of publication ethics

We hereby declare that the study has not unethical issues and that research and publication ethics have been observed carefully.

Researchers' contribution rate

The study was conducted and reported with equal collaboration of the researchers.

Ethics Committee Approval Information

This study was reviewed by the Burdur Mehmet Akif Ersoy University Non-Invasive Clinical Research Ethics Committee at the meeting number 2020/5 on 13/05/2020 in terms of justification, purpose, approach and method and was found ethically appropriate (Decision Number: GO 2020/110).

REFERENCES

Akbağ, M. (2000). *An investigation of the coping styles of the university students in terms of negative automatic thoughts, ego states ain transactional analysis and other variables* (Unpublished doctoral dissertation). Marmara University, Graduate School of Educational Sciences, İstanbul.

Alçay, A. (2015). *Examining the relationship between self-efficacy and irrational beliefs of adolescents* (Unpublished master's thesis). Dokuz Eylül University, Graduate School of Educational Sciences, İzmir.

Altıntaş, G. (2006). *Investigating the relationship of communication skills and irrational beliefs of high school adolescents with respect to some independent variables* (Unpublished master's thesis). Gazi University, Graduate School of Educational Sciences, Ankara.

Aydoğan, D., Deniz, M. E., Dilmaç, B., & Koruklu, N. (2009). The explication of primary school students' perfectionist properties with irrational beliefs. *Elementary Education Online, 8*(3), 720-728. https://doi.org/10.17051/io.14898

Aydoğdu, H. (2017). *An analysis of the relationship between subjective well-being and irrational beliefs of high school students* (Unpublished master's thesis). İstanbul University, Graduate School of Educational Sciences, İstanbul.

Aysan, F., & Bozkurt, N. (2000). The relationship between the coping strategies used by a group of university students and their depressive tendencies and negative automatic thoughts. *Marmara University Atatürk Education Faculty Journal of Educational Sciences, 12*(12), 25-38.

Baltaş, A., & Baltaş, Z. (2004). *Stress and ways to cope* (22th ed.). İstanbul: Remzi Bookstore.

Benet-Martinez, V., & John, O. P. (1998). Los cinco grades across cultures and ethnic groups: Multitrait-multimethod analyses of the big five in Spanish and English. *Journal of Personality and Social Psychology, 75*(3), 729-750. https://doi.org/10.1037/0022-3514.75.3.729

Bernard, M. E. (1984). Childhood emotion and cognitive behavior therapy: A rationalemotive perspective. In P. C. Kendall (Ed.), *Advances in cognitive-behavioral research and therapy* (pp. 213-253). London: Academic Press, Inc.

Büyüköztürk, Ş., Kılıç-Çakmak, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2016). *Scientific research methods* (21th ed.). Ankara: Pegem Academy.

Choudhury, K. (2013). Rational and irrational beliefs. In S. Cartwright & C. L. Cooper (Eds.), *Managing workplace stress* (pp. 7-12). Springer, India.

Craciun, B. (2013). The efficiency of applying a cognitive behavioral theraphy program in diminishing perfectionism, irrational beliefs and teenagers' stres. *Procedia Social and Behavioral Sciences, 84*, 274-278. https://doi.org/10.1016/j.sbspro.2013.06.550

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2th ed.). Hillsdale, NJ: Erlbaum.

Costa, Jr, P. T., & McCrae, R. R. (1992). Four ways five factors are basic. *Personality and Individual Differences, 13*(6), 653-665. https://doi.org/10.1016/0191-8869(92)90236-I

Çelik, B. O. (2019). *The effect of parental attitudes on irrational beliefs in adolescents* (Unpublished master's thesis). Üsküdar University, Graduate School of Social Sciences, İstanbul.

Çetin, N., & Ceyhan, E. (2018). The relationship between the academic procrastination of high school students and the trait anxiety, irrational belief, selfregulation and academic achievement. *Hacettepe University Journal of Education, 33*(2), 460-479. https://doi.org/10.16986/HUJE.2017028261

Çivitci, A. (2005). The effects of rational emotive education on the levels of irrational beliefs trait anxiety and logical decision making of junior high school students. *Ege Journal of Education, 6*(2), 59-80.

Çivitci, A. (2006a). Irrational beliefs in adolescents: An investigation according to socio-demographic variables. *Pamukkale University Journal of Education, 8*(19), 9-19.

Çivitci, A. (2006b). The relationships between irrational beliefs and trait anxiety in adolescents. *Inonu University Journal of the Faculty of Education, 7*(12), 27-39.

Çivitci, A. (2009). Relationship between irrational beliefs and life satisfaction in early adolescents. *Eurasian Journal of Educational Research, 37,* 91-109.

Çivitci, A., & Çivitci, N. (2009). Perceived social skills and irrational beliefs in primary school students. *Elementary Education Online, 8*(2), 415-424. https://doi.org/10.17051/io.93821

Çokluk, Ö., Şekercioğlu, G., & Büyüköztürk, Ş. (2014). *Statistics for social sciences* (3th ed.). Ankara: Pegem Academy.

Davies, M. F. (2006). Irrational beliefs and unconditional self-acceptance. Correlational evidence linking two key features of REBT. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 24*(2), 113-124. https://doi.org/10.1007/s10942-006-0027-0

Deniz, A. (2018). *An assessment of the relationship of irrational beliefs with self-esteem and social anxiety among adolescents aged between 11-15 years* (Unpublished master's thesis). Işık University, Graduate School of Social Sciences, İstanbul.

Dryden, W. (1999). *Rational emotive behaviour therapy: A personal approach.* Bicester, Oxon: Winslow Press Limited.

Dryden, W., & Branch, R. (2008). *The fundamentals of rational emotive behaviour therapy* (2th ed.). New Jersey, USA: John Wiley & Sons, Ltd.

Durm, M. W., & Stowers, D. A. (1998). Just world beliefs and irrational beliefs: A sex difference? *Psychological Reports, 83*(1), 328-330. https://doi.org/10.2466/pr0.1998.83.1.328

Ejei, L., Rezaei, M., & Lavasani M. G. (2011). The effectiveness of coping strategies training with irrational beliefs (cognitive approach) on test anxiety of students. *Procedia - Social and Behavioral Sciences, 30,* 2165-2168. https://doi.org/10.1016/j.sbspro.2011.10.420

Elçin-Boyacıoğlu, N. (2010). *Irrational beliefs and test anxiety among early adolescents* (Unpublished master's thesis). İstanbul University, Graduate School of Health Sciences, İstanbul.

Elçin-Boyacıoğlu, N., & Küçük, L. (2011). How do irrational beliefs affect test anxiety during adolescence? *Journal of Psychiatric Nursing, 2*(1), 40-45.

Ellis, A. (1994). *Reason and emotion in psychotherapy* (2th ed.). Secaucus, NJ: Birch Lane.

Ellis, A. (1995). *Cognitive and constructive psychotherapies: Theory, research and practice* (Mahoney, M. J., Ed.). ABD: Springer Publishing Company.

Ellis, A. (1997). Albert Ellis on rational emotive behavior therapy. Interview by Lata K. McGinn. *American Journal of Psychotherapies, 51*(3), 309-16.

Erdin, F. (2016). *Analysis of relationship between a logical beliefs of final year secondary school students with their decision making behavior* (Unpublished master's thesis). Nişantaşı University, Graduate School of Social Sciences, İstanbul.

Field, A. (2009). *Discovering statistics using SPSS* (3th ed.). London: Sage Publications Ltd.

Fives, C. J., Kong, G., Fuller, J. R., & DiGiuseppe, R. (2011). Anger, aggression, and irrational beliefs in adolescents. *Cognitive Therapy and Research, 35*(3), 199-208. https://doi.org/10.1007/s10608-009-9293-3

Flett, G. L., Hewitt, P. L., & Cheng, W. M. W. (2008). Perfectionism, distress, and irrational beliefs in high school students: Analyses with an abbreviated survey of personal beliefs for adolescents. *Journal of Rational-Emotive & Cognitive-Behavior Therapy, 26*(3), 194-205. https://doi.org/10.1007/s10942-007-0066-1

Forman, B. D., & Forman, S. G. (1978). Irrational beliefs and personality. *Journal of Personality Assessment, 42*(6), 613-620. https://doi.org/10.1207/s15327752jpa4206_10

Ghumman, A., & Shoaib, M. (2013). Personality traits linked with irrational beliefs: A case of adults, Gujrat-Pakistan. *Middle-East Journal of Scientific Research, 16*(4), 496-501. https://doi.org/10.5829/idosi.mejsr.2013.16.04.11755

Gorman, B. S., & Simon, W. E. (1977). Personality correlates of rational and irrational beliefs. *Rational Living, 12*(1), 25-27.

Göller, L. (2010). *The relationships between the irrational beliefs of adolescents and the levels of depression-hopelessness and perceived academic success* (Unpublished master's thesis). Atatürk University, Graduate School of Social Sciences, Erzurum.

Graziano, W. G., Jensen-Campbell, L. A., & Hair, E. C. (1996). Perceiving interpersonal conflict and reacting to it: The case for agreeableness. *Journal of Personality and Social Psychology, 70*(4), 820-835. https://doi.org/10.1037/0022-3514.70.4.820

Güler, D. (2012). *Relationships of test anxiety with irrational beliefs and parental attitudes in 12th year high school students* (Unpublished master's thesis). Akdeniz University, Graduate School of Social Sciences, Antalya.

Güler, D., & Çakır, G. (2013). Examining predictors of test anxiety levels among 12th grade high school students. *Turkish Psychological Counseling and Guidance Journal, 4*(38), 82-94.

Hamamcı, Z., & Çoban, A. E. (2012). Vocational maturity and career indecision relations with irrational belief. *Turkish Psychological Counseling and Guidance Journal, 3*(27), 31-42.

Hamarta, E., Arslan, C., Saygın, Y., & Özyeşil, Z. (2009). An analysis of coping with stress approaches of university students with respect to their self-esteem and irrational beliefs. *Journal of Values Education, 7*(18), 25-42.

Hamidi, F., & Hosseini, Z. M. (2010). The relationship between irrational beliefs and social, emotional and educational adjustment among junior students. *Procedia-Social and Behavioral Sciences, 5,* 1631-1636. https://doi.org/10.1016/j.sbspro.2010.07.338

Jibeen, T. (2015). Personality dimensions and emotional problems: The mediating role of irrational beliefs in Pakistani adult non-clinical sample. *International Journal of Psychology, 50*(2), 93-100. https://doi.org/10.1002/ijop.12069

Jones, R. G. (1968). *A factored measure of Ellis' irrational belief system with personality and maladjustment correlates* (Unpublished doctoral dissertation). Texas Tech University, ABD.

Kalaycı, Ş. (2016). *SPSS applied multivariate statistical techniques* (7th ed.). Ankara: Asil Publishing House.

Karaman, H. (2018). *Non-rational beliefs and psychological symptoms in 15-18 year adolescents* (Unpublished master's thesis). Nişantaşı University, Graduate School of Social Sciences, İstanbul.

Karasar, N. (2012). *Scientific research method* (24th ed.). Ankara: Nobel Publishing Distribution.

Kartol, A. (2013). *An analysis of irrational beliefs of 12th grade students according to several variables* (Unpublished master's thesis). İnönü University, Graduate School of Educational Sciences, Malatya.

Kılıçarslan, S. (2009). *The relationships between irrational beliefs and aggressiveness in adolescent* (Unpublished master's thesis). Çukurova University, Graduate School of Social Sciences, Adana.

Kılıçarslan, S., & Atıcı, M. (2010). The relationships between irrational beliefs and aggressiveness in adolescent. *Çukurova University Journal of Social Sciences Institute, 19*(3), 113-130.

Kızılyar, O. (2010). *An analysis of the irrational beliefs and locus of control of 7th and 8th grade primary school students according to their emphatic tendencies* (Unpublished master's thesis). Sakarya University, Graduate School of Social Sciences, Sakarya.

Kline, P. (2014). *An easy guide to factor analysis.* New York: Routledge.

Koç, M. (2004). Adolescence period and its general characteristics in terms of developmental psychology. *Journal of Erciyes University Institute of Social Sciences, 1*(17), 231-238.

Kulaksızoğlu, A. (2011). *Adolescent psychology* (12th ed.). İstanbul: Remzi Bookstore.

Küçük, L., Gür, G., Şener, N., Elçin-Boyacıoğlu, N., & Çetindağ, Z. (2016). Correlation between irrational beliefs and the depressive symptom levels of secondary school children. *International Journal of Caring Sciences January, 9*(1), 99-110.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.

Mahfar, M., Aslan, A. S., Noah, S. M., Ahmad, J., Marzuki, W., & Jaafar W. (2014). Effects of rational emotive education module on irrational beliefs and stress among fully residential school students in Malaysia. *Procedia Social and Behavioral Sciences, 114,* 239-243. https://doi.org/10.1016/j.sbspro.2013.12.692

Mahfar, M., Senin, A. A., Yong, C., & Ghani, F. A. (2018). The influence of personality traits on irrational beliefs in Malaysian teachers. *International journal of academic research in business and social sciences, 8*(8), 775-789. https://doi.org/10.6007/IJARBSS/v8-i8/4632

Marcotte, D. (1996). Irrational beliefs and depression in adolescence. *Adolescence, 31*(124), 935-954.

Mayhew, R., & Edelmann, R. J. (1989). Self-esteem, irrational beliefs and coping strategies in relation to eating problems in a non-clinical population. *Personality and Individual Differences, 10*(5), 581-584. https://doi.org/10.1016/0191-8869(89)90042-1

McCrae, R. R., & Costa, Jr, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*(1), 81-90. https://doi.org/10.1037/0022-3514.52.1.81

McCrae, R. R. (1990). Traits and trait names: How well is Openness represented in natural languages?. *European Journal of Personality, 4*(2), 119-129. https://doi.org/10.1002/per.2410040205

McCrae, R. R., & John, O. P. (1992). An introduction to the Five-Factor Model and its applications. *Journal of Personality*, *60*(2), 175-215. https://doi.org/10.1111/j.1467-6494.1992.tb00970.x

McCrae, R. R. (1996). Social consequences of experiential openness. *Psychological Bulletin, 120*(3), 323-337. https://doi.org/10.1037/0033-2909.120.3.323

McCrae, R. R., & Costa Jr, P. T. (1997). Personality trait structure as a human universal. *American Psychologist*, *52*(5), 509-516. https://doi.org/10.1037/0003-066X.52.5.509

McCrae, R. R., & Costa, Jr, P. T. (2008). Empirical and theoretical status of the five-factor model of personality traits. In G. Boyle, G. Matthews, & D. Saklofske (Eds.), *Sage handbook of personality theory and assessment* (pp. 273-294). London: SAGE Publications https://doi.org/10.4135/9781849200462

Mertler, C. A., & Vannatta, R. A. (2005). *Advanced and multivariate statistical methods: Practical application and interpretation* (3th ed.). CA: Pyrczak Publishing.

Morris, G. B. (1992). Adolescent leaders: Rational thinking, future beliefs, temporal perspective, and other correlates. *Adolescence, 27*(105), 173-181.

Ozer, D. J., & Benet-Martinez, V. (2006). Personality and the prediction of consequential outcomes. *Annual Review of Psychology, 57,* 401-421. https://doi.org/10.1146/annurev.psych.57.102904.190127

Öksüz, Y., Ayvalı, M., Coşkun, K., Baba, M., & İnci, A. (2011). The relationship between perceived social support and unreasonable bevahiours. *International Journal of Social Science, 4*(1), 119-136. https://doi.org/10.9761/jasss_165

Özen, Y., & Gül, A. (2007). Population-sampling issue on social and educational research studies. *Atatürk University Journal of Kazım Karabekir Education Faculty,* (15), 394-422.

Öztütüncü, F. (1996). *Irrational negative automatic in high school adolescents* (Unpublished master's thesis). Marmara University, Graduate School of Social Sciences, İstanbul.

Peker, A., Kartol, A., & Demir, M. (2015). The investigation with structural equation modeling of relationship between irrational beliefs and decision-making styles in adolescents. *EKEV Academy Journal, 19*(63), 1-14.

Samar, S. M., Walton, K. E., & McDermut, W. (2013). Personality traits predict irrational beliefs. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 31*(4), 231-242. https://doi.org/10.1007/s10942-013-0172-1

Sava, F. A. (2009). Maldaptive schemas, irrational beliefs, and their relationship with the Five Factor Personality model. *Journal of Cognitive and Behavioral Psychotherapies, 9*(2), 135-147.

Schill, T., Adams, A. E., & Ramanaiah, N. (1982). Coping with stress and irrational beliefs. *Psychological Reports, 51*, 1317-1318. https://doi.org/10.2466/pr0.1982.51.3f.1317

Schmitt, D. P., Allik, J., McCrae, R. R., & Benet-Martínez, V. (2007). The geographic distribution of Big Five personality traits: Patterns and profiles of human self-description across 56 nations. *Journal of Cross-Cultural Psychology, 38*(2), 173-212. https://doi.org/10.1177/0022022106297299

Sharah, H. S. (2012). The capability of big five personality factors in predicting the irrational beliefs. *Journal of Educational & Psychological Sciences, 13*(02), 245-272. https://doi.org/10.12785/JEPS/130209

Sheng, C. Y. (2017). *The influence of big five personality traits on irrational beliefs among primary school teachers in Muar, Johor* (Unpublished doctoral dissertation). Universiti Teknologi Malaysia, Malaysia.

Silverman, S., & DiGiuseppe, R. (2001). Cognitive-behavioral constructs and children's behavioral and emotional problems. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 2*(19), 119-134. https://doi.org/10.1023/A:1011183506003

Siva, N. A. (1991). *Examining stress coping, learned resourcefulness and depression in infertility* (Unpublished doctoral dissertation). Hacettepe University, Institute of Neurological Sciences and Psychiatry, Ankara.

Spörrle, M., Strobel, M., & Tumasjan, A. (2010). On the incremental validity of irrational beliefs to predict subjective well-being while controlling for personality factors. *Psicothema, 22*(4), 543-548.

Sümer, N., & Sümer, H. C. (2005). *Five factor personality traits scale* (Unpublished study).

Şahin, N. H., & Durak, A. (1995). The coping styles scale: Adaptation for university students. *Turkish Journal of Psychology, 10*(34), 56-73.

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Pearson.

Trouba, E. J. (2007). *A person-organization fit study of the Big Five personality model and attraction to organizations with varying compensation system characteristics* (Unpublished doctoral dissertation). DePaul University, Chicago.

Turner, M. J., & Barker, J. B. (2015). Examining the effects of rational emotive behavior therapy on the irrational beliefs of blue-chip professionals. *Journal of Rational Emotive and Cognitive-Behavior Therapy, 33*(1), 17-36. https://doi.org/10.1007/s10942-014-0200-9

Türküm, A. S. (2001). The relationships among coping with stress, optimism, irrational beliefs and attitudes towards seeking psychological help: A study with university students. *Anadolu University Journal of Social Sciences, 1*(2), 1-16.

Türküm, A. S. (2003). The development of irrational belief scale and studies of minimizing the number of items. *Turkish Psychological Counseling and Guidance Journal, 2*(19), 41-47.

Türküm, A. S., Balkaya, A., & Karaca, E. (2005). The adaptation of the irrational beliefs scale to high school students: Validity and reliability studies. *Turkish Psychological Counseling and Guidance Journal, 3*(23), 77-85.

Ulusoy, Y., & Duy, B. (2013). Effectiveness of a psycho-education program on learned helplessness and irrational beliefs. *Educational Sciences: Theory & Practice, 13*(3), 1431-1446. https://doi.org/10.12738/estp.2013.3.1469

Uygur, S. S. (2018). Predicting the problem solving skills of high school students according to irrational beliefs and decision making styles. *Electronic Journal of Social Sciences, 17*(67), 1014-1026.

Uzun, K., & Kemerli, Ş. (2019). Irrational beliefs as the predictor of school burnout in adolescents. *Journal of Research in Education and Teaching, 8*(1), 10-26.

Uzun, K., Gönültaş, O., & Akın, M. S. (2020). Intolerance of uncertainty and irrational beliefs as predictors of alexithymia levels of adolescents. *Humanistic Perspective, 2*(2), 191-211.

Vernon, A. (2004). Rational emotive education. *Romanian Journal of Cognitive and Behavioral Psychotherapies, 4*(1), 23-37.

Wicker, F. W., Richardson, F. C., & Lambert, F. B. (1985). Differential correlates of irrational belief. *Journal of Personality Assessment, 49*(2), 161-167. https://doi.org/10.1207/s1 5327752jpa4902_11

Yıkılmaz, M. (2009). *The effect of rational emotive education program on irrational beliefs and problem solving self appraisal of high school students* (Unpublished master's thesis). Gaziantep University, Graduate School of Social Sciences, Gaziantep.

Yıkılmaz, M., & Hamamcı, Z. (2012). The effect of rational emotive education program on high school students' irrational beliefs and perceived problem solving skills. *Turkish Psychological Counseling and Guidance Journal, 4*(35), 54-63.

Yıldız, M. A., Baytemir, K., & Demirtaş, A. S. (2018). Irrational beliefs and perceived stress in adolescents: The role of self-esteem. *Journal of Educational Sciences and Psychology, 8*(1), 79-89.

Yıldız, M. C. (2016). *Investigation of irrational beliefs of the children grow up in divorced families according to attachment level to their parents* (Unpublished master's thesis). Mersin University, Graduate School of Educational Sciences, Mersin.

Zurawski, R. M., & Smith, T. W. (1987). Assessing irrational beliefs and emotional distress: Evidence and implications of limited discriminant validity. *Journal of Counseling Psychology, 34*(2), 224-227.